

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1 1. (previously amended) A process of aligning and connecting at least one
2 optical fiber to at least one optoelectronic device to facilitate the coupling of
3 light between at least one optical fiber and at least one optoelectronic device,
4 comprising the steps of:
5 positioning at least one optical element in a position relative to at least one
6 optoelectronic device in such a manner that when the device and element are in
7 a position proximate to each other, they would be in optical alignment, wherein
8 the at least one optoelectronic device is an array of vertical cavity surface
9 emitting lasers;
10 depositing a first non-opaque material on the first end of at least one optoelectronic
11 device; and
12 fixating the first end of at least one optical element proximate to the first end of at
13 least one optoelectronic device in such a manner that the first non-opaque
14 material contacts the first end of at least one optoelectronic device and the first
15 end of at least one optical element.
- 1 2. - 3. (canceled)
- 1 4. (previously amended) A process as in claim 1, wherein the vertical cavity
2 surface emitting laser is an oxide vertical cavity surface emitting laser.
- 1 5. (original) A process as in claim 1, wherein at least one optoelectronic device is
2 a photo-detector.
- 1 6. (original) A process according to claim 1, wherein the first non-opaque
2 material comprises an adhesive.
- 1 7. (original) A process according to claim 6, wherein the first non-opaque
2 material comprises an UV optical adhesive.

- 1 8. (original) A process according to claim 1, wherein the first non-opaque
2 material functions to provide an optical path.
- 1 9. (original) A process according to claim 1, wherein the first non-opaque
2 material functions to provide mechanical stability.
- 1 10. (original) A process according to claim 1, wherein the first non-opaque
2 material comprises a gel.
- 1 11. (original) A process according to claim 1, wherein the at least one optical
2 element is included in an array of optical elements.
- 1 12. (original) A process according to claim 1, wherein at least one optical element
2 is an optical fiber.
- 1 13. (original) A process according to claim 1, wherein at least one optical element
2 is a MT-type connector.
- 1 14. (original) A process according to claim 1, wherein at least one optical element
2 is a ferrule.
- 1 15. (original) A process according to claim 14, wherein at least one optical
2 element is a MT-like ferrule.
- 1 16. (original) A process according to claim 1, wherein at least one optical element
2 is a lenslet array.
- 1 17. (original) A process according to claim 1, wherein at least one optical element
2 is a diffractive optical element.
- 1 18. - 102. (canceled).
- 1 103. (previously amended) A process of aligning and connecting at least one
2 optical fiber to at least one optoelectronic device to facilitate the coupling of

3 light between at least one optical fiber and at least one optoelectronic device,
4 comprising the steps of:

- 5 a) holding at least one optical element at the end of a first member of an alignment
6 system, and holding at least one optoelectronic device on a second member of
7 the alignment system, wherein the at least one optoelectronic device is an array
8 of vertical cavity surface emitting lasers;
- 9 b) visually locating a target associated with at least one optoelectronic device;
- 10 c) illuminating at least one optical element with a light so that at least one optical
11 element emits optical energy onto at least one optoelectronic device;
- 12 d) changing the relative positions of the optical energy and target so that the optical
13 energy is visually aligned with the target; and
- 14 e) bringing the first end of at least one optical element proximate to a first end of at
15 least one optoelectronic device in such a manner that a gap exists between the
16 first end of at least one optoelectronic device and the first end of at least one
17 optical element.

1 104. (original) A process according to claim 103, wherein visually locating a target
2 comprises employing human vision and a microscope.

1 105. (original) A process according to claim 103, wherein visually locating a target
2 comprises employing machine vision.

1 106. (original) A process according to claim 103, wherein visually aligning the
2 optical energy with the target comprises employing human vision and a
3 microscope.

1 107. (original) A process according to claim 103, wherein visually aligning the
2 optical energy with the target comprises employing machine vision.

1 108. – 109. (canceled).

- 1 110. (original) An process as in claim 103, wherein the vertical cavity surface
2 emitting laser is an oxide vertical cavity surface emitting laser.
- 1 111. (original) An process as in claim 103, wherein the optoelectronic device is a
2 photo-detector.
- 1 112. (original) A process according to claim 103, wherein a side-view camera and a
2 video-image-measuring system are used to bring the first end of at least one
3 optical element proximate to the first end of at least one optoelectronic device.
- 1 113. (original) A process according to claim 103, wherein laser triangulation is
2 used to bring the first end of at least one optical element proximate to the first
3 end of at least one optoelectronic device.
- 1 114. (original) A process according to claim 103, wherein interference microscopy
2 is used to bring the first end of at least one optical element proximate to the
3 first end of at least one optoelectronic device.
- 1 115. (original) A process according to claim 103, wherein the first member of an
2 alignment system is a high precision arm.
- 1 116. (original) A process according to claim 103, wherein the second member of an
2 alignment system is a high precision stage.
- 1 117. (original) A process according to claim 103, wherein at least one optical
2 element is an array of optical fibers.
- 1 118. (original) A process according to claim 103, wherein at least one optical
2 element is an array of optical fibers.
- 1 119. (original) A process according to claim 103, wherein the optical element is an
2 optical fiber.

- 1 120. (original) A process according to claim 103, wherein the optical element is a
2 MT type connector.
- 1 121. (original) A process according to claim 103, wherein the optical element is a
2 ferrule.
- 1 122. (original) A process according to claim 103, wherein the optical element is a
2 MT-like ferrule.
- 1 123. (original) A process according to claim 103, wherein the optical element is a
2 lenslet array.
- 1 124. (original) A process according to claim 103, wherein the optical element is a
2 diffractive optical element.
- 1 125. - 136. (canceled)
- 1 137. (original) A process according to claim 1, wherein the positioning at least one
2 optical element in a position relative to at least one optoelectronic device
3 includes aligning 12 optical fibers relative to an optoelectronic device.
- 1 138. (canceled)
- 1 139. (new) A method of aligning and connecting at least one optical element to at
2 least one optoelectronic device comprising:
3 positioning at least one optical element in a position relative to at least one
4 optoelectronic device in such a manner that when the device and element are in
5 a position proximate to each other, they would be in optical alignment, wherein
6 the at least one optoelectronic device is an array of photo-detectors;
7 depositing a first non-opaque material on the first end of at least one optoelectronic
8 device; and

9 fixating the first end of at least one optical element proximate to the first end of at
10 least one optoelectronic device in such a manner that the first non-opaque
11 material contacts the first end of at least one optoelectronic device and the first
12 end of at least one optical element.

1 140. (new) The method of claim 139, wherein the first non-opaque material
2 comprises an adhesive.

1 141. (new) The method of claim 139, wherein the first non-opaque material
2 comprises an UV optical adhesive.

1 142. (new) The method of claim 139, wherein the first non-opaque material
2 functions to provide an optical path.